

**TRANSLATION**

**PATENT COOPERATION TREATY**

**PCT**

**INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY**

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference <b>SF-1143</b>	<b>FOR FURTHER ACTION</b>	See Form PCT/IPEA/416
International application No. <b>PCT/JP2005/001786</b>	International filing date ( <i>day/month/year</i> ) <b>02.07.2005</b>	Priority date ( <i>day/month/year</i> ) <b>02.09.2004</b>
International Patent Classification (IPC) or national classification and IPC <b>C04B41/90, C04B41/88, H01L35/34</b>		
Applicant <b>TOKUYAMA CORPORATION</b>		

1.	This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.
2.	This REPORT consists of a total of <u>5</u> sheets, including this cover sheet.
3.	This report is also accompanied by ANNEXES, comprising: a. <input type="checkbox"/> (sent to the applicant and to the International Bureau) a total of _____ sheets, as follows: <input type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions). <input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box. b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).
4.	This report contains indications relating to the following items: <input checked="" type="checkbox"/> Box No. I Basis of the report <input type="checkbox"/> Box No. II Priority <input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability <input type="checkbox"/> Box No. IV Lack of unity of invention <input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement <input type="checkbox"/> Box No. VI Certain documents cited <input type="checkbox"/> Box No. VII Certain defects in the international application <input type="checkbox"/> Box No. VIII Certain observations on the international application

Date of submission of the demand	Date of completion of this report
Name and mailing address of the IPEA/JP	Authorized officer
Facsimile No.	Telephone No.

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

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## Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following \_\_\_\_\_, which is the language of a translation furnished for the purposes of:
- ☐ international search (Rule 12.3 and 23.1(b))
- ☐ publication of the international application (Rule 12.4)
- ☐ international preliminary examination (Rule 55.2 and/or 55.3)
2. With regard to the **elements** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:
- ☒ the international application as originally filed/furnished
- ☐ the description:
- pages \_\_\_\_\_ as originally filed/furnished
- pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☐ the claims:
- nos. \_\_\_\_\_ as originally filed/furnished
- nos.\* \_\_\_\_\_ as amended (together with any statement) under Article 19
- nos.\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- nos.\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☐ the drawings:
- sheets \_\_\_\_\_ as originally filed/furnished
- sheets\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- sheets\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.
3. ☐ The amendments have resulted in the cancellation of:
- ☐ the description, pages \_\_\_\_\_
- ☐ the claims, nos. \_\_\_\_\_
- ☐ the drawings, sheets/figs \_\_\_\_\_
- ☐ the sequence listing (*specify*): \_\_\_\_\_
- ☐ any table(s) related to sequence listing (*specify*): \_\_\_\_\_
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- ☐ the description, pages \_\_\_\_\_
- ☐ the claims, nos. \_\_\_\_\_
- ☐ the drawings, sheets/figs \_\_\_\_\_
- ☐ the sequence listing (*specify*): \_\_\_\_\_
- ☐ any table(s) related to sequence listing (*specify*): \_\_\_\_\_

\* If item 4 applies, some or all of those sheets may be marked "superseded."

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

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Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement		
1.	Statement		
	Novelty (N)	Claims <u>1-4, 7-11</u>	YES
		Claims <u>5, 6</u>	NO
	Inventive step (IS)	Claims <u>1-4, 9-11</u>	YES
		Claims <u>5-8</u>	NO
	Industrial applicability (IA)	Claims <u>1-11</u>	YES
		Claims _____	NO
2.	Citations and explanations (Rule 70.7)		
	<p>Document 1: JP 2003-96554 A (Matsushita Electric Works, Ltd.), 3 April 2003, [claim 1]; paragraphs [0004], [0023] and [0028]</p> <p>Document 2: JP 2003-197982 A (Komatsu Electronics Co., Ltd.), 11 July 2003, [claim 1]; [fig. 1]</p> <p>Document 3: JP 2004-26522 A (Sumitomo Electric Industries, Ltd.), 29 January 2004, paragraphs [0040] to [0042] &amp; WO 2003/101166 A1, pages 24 and 25</p> <p>Claims 1 to 4</p> <p>Document 1 ([claim 1] and paragraph [0023]) cited in the international search report sets forth a method of producing metallized ceramic moldings, wherein after a non-oxide ceramic molding is pre-heated, an oxide layer is formed on the surface by oxygen plasma, and a metal film is formed on the surface of the oxide film. However, the formation of an oxide layer by said oxygen plasma is different to the heating step and oxidation step in claim 1. In addition, the heating step and oxidation step in claim 1 are not disclosed in any of the documents cited in the international search report, and would not be obvious to a person skilled in the art. Therefore the</p>		

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	<p>invention set forth in claim 1 and the invention set forth in claims 2 to 4 which refer back to claim 1 are novel and involve an inventive step.</p> <p>Claims 5 and 6</p> <p>Document 1 (paragraph [0028]) indicates that a metal film is adhered by the presence of an oxide layer, and the oxide layer which contributes to adhesion is effectively free of cracks and gaps. That being the case, the metallized ceramic molding set forth in document 1 is not different from the metallized ceramic molding set forth in claims 5 and 6 of this application, therefore the invention set forth in claims 5 and 6 lacks novelty and does not involve an inventive step.</p> <p>Claims 7 and 8</p> <p>Document 2 ([claim 1]; [fig. 1]) cited in the international search report sets forth a Peltier element having: a pair of ceramic substrates having their own respective conductive patterns, and positioned facing one another; a thermoelectric material part comprising P-type thermoelectric material and N-type thermoelectric material positioned alternately between said pair of ceramic substrates; an electrode positioned between said thermoelectric material part and one of the substrates; and an electrode positioned between said thermoelectric material part and the other ceramic substrates; wherein these electrodes are positioned so as to be electrically connected alternately to P-type thermoelectric material and N-type thermoelectric material which constitute the aforementioned thermoelectric material part, and are connected to the conductive patterns of the respective</p>

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adjoining ceramic substrates. By applying the ceramic substrate set forth in document 1 as the ceramic substrate, effectively the same Peltier element as that set forth in claims 7 and 8 of this application would be obtained. Therefore the invention set forth in claims 7 and 8 does not involve an inventive step in the light of documents 1 and 2.

Claims 9 to 11

Step D (that is to say, the heating step) and step E (that is to say, the oxidation step) set forth in claims 9 and 10 are not disclosed in any of the documents cited in the international search report, and would not be obvious to a person skilled in the art. Therefore the invention set forth in claims 9 and 10 and the invention set forth in claim 11 which refers back to claim 10 are novel and involve an inventive step.